AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) Method for equalising and demodulating a data signal transmitted using a single-carrier or multi-carrier data-transmission procedure via a time-variant channel to a receiver, ~~**characterised in that**~~ wherein the scatterer coefficients [(] including attenuation, delay and Doppler frequency[)] in the received data signal, which cause signal distortion in the channel, are measured in the receiver, and ~~that~~ the data signal is equalised with the scatterer coefficients determined in this manner and then demodulated with them.

2. (currently amended) Method according to claim 1, ~~**characterised in that**~~ wherein the measurement of the scatterer coefficients and the equalisation of the data signal take[s] place within the time domain.

3. (currently amended) Method according to claim 2, ~~characterised by~~ wherein its use is in the context of single-carrier data transmission schemes.

4. (currently amended) Method according to claim 2, ~~characterised by~~ wherein its use is in the context of multi-carrier data transmission ~~procedures~~ schemes for receiving known data sequences ~~(training or synchronisation sequences)~~.

5. (currently amended) Method according to claim 1, ~~**characterised in that**~~ wherein the measurement of the scatterer coefficients and the equalisation of the data signal take place within the frequency domain.

6. (currently amended) Method according to claim 5, ~~characterised by~~ wherein its use is in the context of multi-carrier data transmission ~~procedures~~ schemes.

7. (currently amended) Method according to ~~any one of the preceding claims, characterised in that~~ claim 1, wherein the scatterer coefficients are measured via a maximum likelihood criterion.

8. (currently amended) Method according to claim 7, wherein ~~characterised in that~~ the maximum-likelihood criterion is determined from the Euclidian distance between the received signal, the scatterer coefficients and the signal data demodulated in the receiver.

9. (currently amended) Method according to ~~any one of the preceding claims, characterised in that~~ claim 1, wherein a first measurement of the scatterer coefficients is implemented with the assistance of a known data sequence ~~(training or synchronisation sequence)~~.

10. (currently amended) Method according to claim 1, wherein ~~to 9, characterised in that~~ the first measurement of the scatterer coefficients is implemented block-wise over an entire data sequence.

11. (currently amended) Method according to claim 1, wherein ~~any one of the preceding claims 1 to 9, characterised in that~~ a Kalman algorithm is used iteratively for the measurement of the scatterer coefficients.

12. (currently amended) Method according to claim 1, wherein ~~any one of the preceding claims 1 to 9, characterised in that~~wherein a recursive-least-square algorithm is used iteratively for the measurement of the scatterer coefficient.

13. (currently amended) Method according to claim 9, wherein ~~or 10, characterised in that~~ the scatterer coefficients determined in the first measurement are used for receiving the associated user data, wherein the data are equalised and demodulated block-wise over an entire data sequence, and ~~that~~ the scatterer coefficients ~~measured~~ is determined in the first measurement are corrected with reference to the data equalised and demodulated in this block-wise manner.

14. (currently amended) Method according to claim 1, wherein ~~any one of the preceding claims, characterised in that~~ the scatterer coefficients determined in the first measurement are used for receiving the associated user data, wherein the scatterer coefficients determined in the first measurement are corrected according to a Kalman or recursive-least-square algorithm with reference to the data equalised and demodulated.

15. (currently amended) Method according to claim 13, wherein ~~or 14, characterised in that~~ a tree-search procedure is used for correction of the scatterer coefficients and for data demodulation, wherein, the scatterer coefficients and metrics are ~~determined~~ measured, in each case, for all possible data sequences, and those data sequences, which provide the best maximum-likelihood-metric, are then selected from the tree structure.

16. (currently amended) Method according to claim 15, ~~characterised in that~~ wherein the scatterer coefficients corresponding to the selected best data sequences are used for subsequent equalisation and demodulation.

17. (currently amended) Method according to claim 15, wherein ~~or 16, characterised in that~~ selection of the data sequences is carried out block-wise for the entire data sequence observed.

18. (currently amended) Method according to claim 15, wherein ~~to 16, characterised in that~~ the data sequences are selected after a predetermined pathway depth of the tree has been reached.

19. (currently amended) Method according to claim 15, wherein ~~to 18, characterised in that~~ a metric-first algorithm is used in the tree-search procedure.

20. (currently amended) Method according to claim 15, wherein ~~to 18, characterised in that~~ a breadth-first algorithm is used in the tree-search procedure.

21. (currently amended) Method according to claim 15, wherein ~~to 18, characterised in that~~ a depth-first algorithm is used in the tree-search procedure.

22. (currently amended) Method according to claim 15, wherein ~~to 21, characterised in that~~ the pathway depth and/or the number of pathways is varied adaptively in the tree-search procedure according to the scatterer coefficients determined.

23. (currently amended) Method according to any one of claim[s] 15, wherein ~~to 22, characterised in that~~ the metric value is also presented in the output of the demodulated data sequence.

24. (currently amended) Method according to claim 15, wherein ~~to 22, characterised in that~~ in addition to the data sequence with the best maximum-likelihood metric, other, next-best data sequences with a next-best-likelihood metric are also presented.

25. (currently amended) Method according to any one of claim[s] 15, wherein ~~to 24, characterised in that~~ when receiving data signals coded according to a code, exclusively data sequences corresponding to valid code words are included in the tree-search procedure.

26. (currently amended) Method according to claim 25, ~~characterised in that~~ wherein in addition to taking the code into consideration, a Viterbi algorithm or APP algorithm is used in the tree-search procedure.

27. (currently amended) Method according to claim 1, wherein ~~any one of the preceding claims~~ **~~characterised in that~~** the first measurement of scatterer coefficients is implemented exclusively with unknown useful data sequences, and that default values are used in the initialisation of the algorithm instead of the training and synchronisation sequences.

28. (currently amended) Method according to ~~any one of claims~~ claim 7 ~~to 10,~~ wherein ~~**characterised in that**~~ the maximum number of scatterer coefficients to be included in an algorithm ~~the algorithms~~ is adapted in each case on the basis of the scatterer coefficients previously determined.